Remarks

A certified copy of the priority document as filed, Japanese patent application JP11-57993 filed on March 5, 1999, accompanies this amendment. A verified translation of the priority document is also provided.

Applicants note that the Office Action cites the abstract of Diehr et al., US Patent 4,956,356 as a reference based on its listing in the Chemical Abstracts database (Chem. Abstract 90: 71749). In the Notice of References Cited, Diehr et al. is listed as a non-patent document. Applicants have responded to this Office Action based on the full text of Diehr, et al. Applicants respectfully request that the Examiner list Diehr, et al., US Patent 4,956,356, in the US Patent Documents section of the Notice of References Cited in the next Official Action.

The Examiner is advised that this application was inadvertently filed under 35 U.S.C. 111 instead of 35 U.S.C. 371. A petition to change the status of this application was filed on April 25, 2003, but no decision has yet been received. If the petition is granted, this application will have an effective U.S. filing date of March 1, 2000, and a Japanese priority date of March 5, 1999. If the petition is denied, this application will be amended to be a continuation of PCT/JP00/01190 and to rely on the March 5, 1999 Japanese priority.

Claim 1 has been amended to limit the possible choices for substituent "A." Claim 1 has also been amended so that the "-Y-X" group is now limited to either -CH=C(R^8)-N= or –CH=C(R^9)-CH=N-.

Claim 9 has been cancelled. New claim 18 claims a subset of the compounds recited in cancelled claim 9.

The word "preventing" has been removed from claims 3-5, 7, 12-14, and 16 of the present application to in accordance with the suggestion of the Examiner.

The meaning of the term "heterocyclic" within the claims is now explicitly defined in claim 1. Similarly, the claims have been amended to clarify the meaning of the phrase "optionally substituted."

The language of the claims has been amended to more particularly point out and distinguish the claimed subject matter of each claim. In particular, claims 2 – 7 and 10 – 16 are not substantial duplicates of claims 1 and 18.

The rejection of claims 7, 8, 16, and 17 under 35 U.S.C. 112, second paragraph as having an indeterminate scope is respectfully traversed. The reasons for the rejection provided in the Office Action are not applicable to claims 8 and 17. For claims 7 and 16, one of skill in the art would understand the scope of the claims. The reasoning in the Office Action appears to state that the claims have a broad scope, but does not support a rejection of the claims as indefinite. Reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claims 1-8 under 35 U.S.C. 112, first paragraph for lack of enabling disclosure of how to prepare and use the claimed compounds is respectfully traversed. In claim 1 as amended, substituent group "A" is limited to the list of compounds recited on page 10, lines 8 – 15 of the specification as

filed. Thus, each of the possibilities for substituent group "A" in claim 1 is specifically recited in the specification.

The claimed compounds of claim 1 can all be readily synthesized by Process 1 as disclosed at pg 12, line 6 – pg 13, line 16 of the specification as filed. The specification discloses 62 separate compounds that were synthesized using Process 1. These 62 compounds include 5 distinct choices for substituent "A", including both phenyl and heterocyclic groups with two different types of hetero atoms. This diversity in the selection of substituent "A" would demonstrate to those skilled in the art that Process 1 has general utility for synthesizing the compounds of the claimed invention. Additionally, those skilled in the art will recognize that the reactants used in Process 1 (compounds of Formula II and III) are either commercially available or readily prepared from known compounds using methods well known in the art

As for uses for the claimed compounds of claim 1, all of the claimed compounds possess a high affinity for and activate the $\alpha 4\beta 2$ nicotinic acetylcholine receptors of the central nervous system. This is amply demonstrated, for example, in the Biological Experiments described at pages 41 – 50 of the specification as filed. Thus, the specification as filed a) specifically identifies the claimed compounds of claim 1, provides a method of synthesis for the claimed compounds, and provides at least one use for the claimed compounds. As a result, reconsideration and withdrawal of this rejection are respectfully requested.

The rejection of claims 2 – 8 and 10 – 17 under 35 U.S.C. 112, first paragraph is also respectfully traversed. Claims 2, 8, 10, 11, and 17 do not recite or mention the treatment of any particular disorder. Instead, these claims recite limitations related to activity at α4β2 nicotinic acetylcholine receptors. The reasoning provided in the Office Action for this rejection is not applicable to claims 2, 8, 10, 11, and 17. Reconsideration and withdrawal of the rejection for claims 2, 8, 10, 11, and 17 are respectfully requested.

As for claims 3 – 7 and 12 – 16 as amended, the specification as filed enables the claimed subject matter for one of ordinary skill in the art. First, the specification as filed details the ability of the claimed compounds to selectively bind at α4β2 nicotinic acetylcholine receptors as opposed to α4β2γδ nicotinic acetylcholine receptors. (Biological Experiments 1 and 2 at pages 41 – 47) The specification also discloses agonist activity for the claimed compounds at human α4β2 nicotinic acetylcholine receptors. (Biological Experiment 3 at pages 47 – 50) The link between activity at the α4β2 nicotinic acetylcholine receptors and treatment of the various conditions by the claimed compounds is provided by the numerous journal articles cited, for example, on pages 2 – 4 of the specification. Finally, the development of practical medicines from compounds with similar activity at α4β2 nicotinic acetylcholine receptors is detailed in the journal articles found at page 5, lines 2 – 15. The various journal articles provide evidence of the current knowledge and skill in the art, and thus that one of skill

in the art would be able to use the claimed compounds for the uses and methods claimed in claims 3 – 7 and 12 – 16. As a result, reconsideration and withdrawal of this rejection are respectfully requested.

The rejection of claims 1 – 5 under 35 U.S.C. 102(b) over Diehr et al., Chem. Abstract 90: 71749 (US Patent 4,956,356) is respectfully traversed. Claims 1 – 5, as amended, do not read on the compounds disclosed in Diehr et al., as the group –Y-X- is now limited to either -CH=C(R^8)-N= or –CH=C(R^9)-CH=N-. Reconsideration and withdrawal of this rejection are respectfully requested.

The rejection of claims 1 – 8 under 35 U.S.C. 102(e) and claims 1 – 8 and 10 – 17 under 35 U.S.C. 103(a) over Latli et al., US Patent 6,303,638, is respectfully traversed. As noted above, Applicants have provided a certified copy of the priority document, a translation of the priority document as filed, and a verification that the translation is a true translation of the certified copy. Based on the priority document, the priority date of the claimed invention is March 5, 1999. As a result, Latli et al. is not a proper reference under 35 U.S.C. 102(e) or 35 U.S.C. 103(a). Reconsideration and withdrawal of these rejections are respectfully requested.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #1830/50325).

Respectfully submitted,

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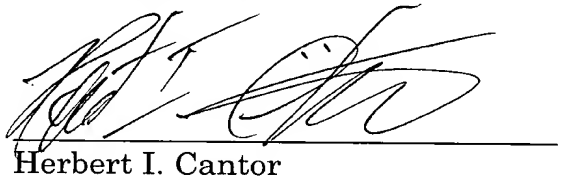

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